SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION
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Agenda Item #10

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TO: Commissioners and Alternates

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SUBJECT: Commission Briefing on Sand Transport in San Francisco Bay
(For Commission Consideration on November 1, 2012)

Summary

Dr. Patrick Barnard, coastal geologist from the Coastal and Marine Geology Program of the US Geological Survey, will present his findings from several studies examining sand transport in San Francisco Bay and the nearshore coast. This briefing will provide an overview of the coarse-grain sediment transport processes at work in the Bay and how they affect the Bay Area coastline and beaches. This information is being provided to assist the Commission in future decisions regarding sand mining activities in the Bay and regional sediment management planning.

Background

Sand has been mined from San Francisco Bay in since the early 1900's, and the San Francisco Bay Conservation and Development Commission (Commission) has authorized sand mining activities for construction purposes since the 1970's. Within the next several months the Commission will consider applications seeking authorization to mine additional sand from the Bay. Previous Commission authorizations for mining from the Bay expired in 2008, and the mining industry has been working under time extensions for the past four years while the California State Lands Commission (CSLC) was undertaking the California Environmental Quality Act (CEQA) review. CSLC completed that review on October 19, 2012 and issued the first lease for renewed mining efforts. The forthcoming Commission applications are anticipated to request the highest mining levels ever authorized from the Central Bay. A more modest request for mining in Suisun Bay is expected.

In preparation for the upcoming applications, Commission staff is providing this briefing to assist the Commission in understanding the physical forces that create the sand beds and the best available science to explain the sediment transport methods and connections between the Sierras, the Bay and the nearshore coast. Dr. Patrick Barnard and his colleagues from the US Geological Survey have used a number of scientific methods and modeling techniques to investigate these processes and will present their findings to the Commission. Prior to the intensive study by the USGS, it was thought that sand mined from the Bay was quickly

replenished, with little or no impact to the Bay and coastal system. Through this work and the CEQA review, it was determined that the sand mined, particularly in the Central Bay, is not being replenished at an appreciable rate and, therefore, the sand from the mining areas in the Bay, and potentially the outer coast, is being depleted. It is not currently known how much sand exists in the Central Bay or Suisun Bay sand beds or the rate of replenishment.

As part of the Commission's Regional Sediment Management Program, sand mining must be considered in context within the Bay sediment system and its connections to the sediment supply and demands. As staff has noted in previous presentations to the Commission, the Bay is in a period of decreased sediment supply from the Delta, and water control structures, flood control channels and dams, and the loss of the "erodible bed" in the Sacramento River have resulted in reduced flows of sediment to the Bay. Maintenance dredging of channels, harbors and berths for navigation purposes represents the largest volume of sediment dredged from the Bay. Mining activities represent the second largest demand on Bay sediments. Habitat restoration projects, including beach and marshes, are the third largest demand, but the sediments used in restoration projects remain within the Bay system.